

OWNERSHIP STRUCTURE, CUSTOMER SATISFACTION AND BRAND EQUITY

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ABSTRACT

This paper studies the interaction between ownership structure, taken as a proxy for shareholders' commitment, and customer satisfaction - the main driver of consumer loyalty - and their impact on a firm's brand equity. The results show that customer satisfaction has a positive direct effect on brand equity but an indirect negative one because of reductions in ownership concentration. This latter effect emerges when managers are mainly customer-oriented. Such result gives out a warning signal that highlights the perverse effect of implementing policies, focused excessively on satisfying customers at the expense of shareholders, on a firm's brand equity. The empirical analysis uses an incomplete panel data comprising 69 firms from 11 nations, for the period 2002-2005.

Keywords: Corporate social responsibility, Brand equity, Shareholders' commitment and Customer loyalty.

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1. INTRODUCTION

Mühlbacher, Hemetsberger, Thelen, Vallaster, Massimo, Füller, Pirker, Schorn and Kittinger (2006) define brands as complex social phenomena where different stakeholders have a role in creating brand value. This point of view departs from the traditional perspective that relies on a market orientation which considers managers as individuals, who define strategies to maximize value, by focusing mainly on customers. Recently, some authors begin to recognize such limitations and propose a wider perspective that integrates different stakeholders (Greenley, Hooley and Rudd, 2005). Stakeholders provide different types of resources to a firm thereby enhancing its value. Remarkably, customers and shareholders are the only stakeholders that provide the firm with financial capital. Hence, these stakeholders should play a relevant role to the enhancement of a firm's value. Anderson, Fornell and Mazvancheryl (2004) confirm this for customers by relying on the reduction in risk, based on the decrease in future cash flow volatility, when customers are loyal. Also, Mittal, Anderson, Sayrak and Tadikamalla (2005) show a connection between customer satisfaction (CS) and long-term financial performance. For shareholders, a wide amount of literature based on the seminal work of Jensen and Meckling (1976) demonstrates the connection between shareholder commitment and firm value. McConnell and Servaes (1990) find a positive relationship between ownership concentration and firm value measured by Tobin's Q. Shareholders with a significant stake will be particularly committed to a firm otherwise they would put at risk a significant proportion of their wealth. Hence, they would have adequate incentives to monitor the manager in order to preclude any opportunistic behavior (Jensen and Meckling, 1976) which, in turn, will have a positive impact on financial performance. Thus, ownership concentration is a natural proxy for shareholder satisfaction and commitment.

This paper studies the relationship between customer satisfaction and ownership concentration (OC) and then follows up by investigating their impact on brand equity (BE) as a performance measure (Keller, 1993; Srivastava, Shervani and Fahey, 1998).

The main finding is that both these dimensions are very closely connected. Therefore, a manager aiming to improve a firm's brand equity, cannot implement marketing tools that affect one stakeholder without considering the effect on the other. More specifically, costly customer-targeted marketing policies may lead to satisfied customers consolidating their linkages with the firm. However, shareholders may consider a strategy focused mainly on satisfying customers as managerial entrenchment (Cespa and Cestone, 2004). Entrenched managers may satisfy customers' interests in order to protect themselves from the disciplinary pressure from shareholders. In such a situation, existing shareholders' interest in the firm decreases and they will reduce their stake. This reduction in ownership concentration may also be interpreted negatively by potential new investors, who prefer firms with visible shareholders (blockholders), giving rise to a negative effect on brand equity. The empirical analysis shows that this negative effect appears for large values of CS and may far outweigh the positive direct effect of CS on BE. Hence, a manager should take into account the reaction from customers as well as investors, in order to maximize a firm's BE.

These results question the effectiveness of several methods of improving customers' loyalty by bundling a firm's products together with its shares. Also, these findings put several workers' compensation packages under the spotlight; these combine discounted prices for products with option-like schemes that transfer shares. These strategies share common ground with some recent marketing perspectives aimed at generating *internalization* (Festinger, 1953) with respect to several stakeholders, in order to develop a strong corporate identity (Chernatony and Harris, 2000). Although capable of turning several stakeholders, like workers, into satisfied customers, these packages may have a negative impact on BE value through reductions in the OC.

2/ THEORETICAL FRAMEWORK.

The theoretical model (see below) explains the interaction between OC, CS and BE. This model recognizes a bidirectional connection between OC and CS and an effect (both direct and indirect) of each variable on a firm's BE:

[Figure 1 here]

2.1 The interaction between customer satisfaction and ownership concentration

2.1.1. From shareholders to customers

The presence of blockholders in concentrated ownership structures generates customer confidence (Power and Whelan, 2006). Identifying with the organization may also enhance the support and commitment from other stakeholders (Chernatony and Harris, 2000) and improve CS. Other papers that study the linkage between ownership structure and corporate social performance (CSP), of which CS is a relevant component find that long-term institutional owners, who generally are controlling blockholders, affect a firm's CSP positively (Neubaum and Zahra, 2006). Also, Barnea and Rubin (2005) argue that large blockholders may fully benefit from being associated with a large CSP firm. This will stimulate the implementation of socially responsible actions that will lead to CS. These arguments suggests the following hypothesis:

Hypothesis 1: OC has a positive impact on CS.

2.1.2. From customers to shareholders.

Different arguments can justify the connection from CS to OC. First, firms whose managers follow a market-oriented perspective, focused mainly on satisfying customers, may lose their competitive advantage by neglecting the interests of other stakeholders which, in turn, will affect financial results detrimentally. However, this strategy may be in the interests of a manager who

pursues private benefits extraction that could erode profits. This strategy allows the manager canvass support from customers to shield him from any disciplinary pressure from shareholders (entrenchment strategy). Pagano and Volpin (2005) use that argument to justify that firms may offer long-term labor contracts for improving workers' satisfaction and deter takeover threats (entrenchment mechanism). Moreover, the manager can even disguise this decrease in profits, linked to private benefits extraction, as the consequence of implementing a policy aimed at customer satisfaction. In this context, blockholders would tend to reduce their stake in firms where a manager embarks on such an entrenchment strategy. Also, after having gained the support of customers, managers may reduce their own stakes because these stakes would then not be so vital to seeing off the pressure from other shareholders (*e.g.* as a way of preventing potential takeovers). In both cases a reduction in ownership concentration follows. An example may be enlightening: when Coca Cola tried to change the flavor of Coke in 1985, some customers organized pressure groups to agitate against such a change. The mass media also leaned in favor of the customers given that Coke is an icon of the American way of life. Finally, the CEO of Coca Cola (Roberto Goizueta) decided to maintain both classic coke as well as the new one. This decision was very costly for Coca Cola and a major marketing flop that should have cost Goizueta his post as CEO. However, he retained his position as CEO by justifying such a move based on to customer satisfaction. Not surprisingly, investors were unhappy with such an outcome and penalized Coca Cola shares and some institutional investors decided to reduce their stakes in the company, thus, diminishing OC. In this example Goizueta used CS as an entrenchment mechanism and the final outcome was a reduction in ownership concentration (see http://en.wikipedia.org/wiki/New_Coke).

A second channel connecting customers and investors emerges when satisfied customers with a firm's products go a step further and become shareholders of that firm. Then, the decision to become a shareholder is a latter stage of an *internalization* process (Festinger, 1953); customers increasingly identify with a specific corporate image and, in the extreme, want to become part of that image.

On other occasions, the firm stimulates the link between CS and OC. For example, as a result of bundling products with shares. In this scenario, loyal customers receive shares directly from the firm (e.g. Puleva, a Spanish food company). A second example is when workers get shares as part of their compensation package in addition to discounted prices for a firm's products. The outcome of this process where customers become shareholders – of their own volition or through bundling - should lead to a reduction in the ownership concentration as customers are generally small investors. The previous arguments suggest the following hypothesis:

Hypothesis 2: CS has a negative impact on OC.

2.2. Financing Channel: Connecting ownership structure to brand equity

The presence of blockholders affects a firm's value in different ways. One effect relates directly to investors' decisions on financial markets. The other effect is indirect, through the aforementioned impact on CS, which also affects a firm's value.

With regard to the direct financing channel, the presence of blockholders has an ambiguous effect on a firm's value. On the one hand, large blockholders may expropriate minority shareholders and destroy value (Shleifer and Vishny, 1986; Thomsen and Pedersen, 2000), whereas on the other, the presence of large blockholders hinders the value-reducing agency problems linked to opportunistic managerial behavior (Shleifer and Vishny, 1989). The combined result from both effects is not clear. However, for listed firms (as in the sample), when blockholders increase their stake, they will have a greater inclination to expropriate because they can then generate private benefits and delegate the control of errant managers to the financial markets (cross-monitoring hypothesis, Booth, 1992). This balance suggests the existence of a neutral or a negative direct impact of OC on BE.

Focusing on the indirect channel, OC has a positive impact on a firm's brand equity through variations in CS. On the one hand, Hypothesis 1 relies on different arguments suggesting a strong

positive relationship between OC and CS; on the other hand, CS has a positive overall impact on a firm's BE because of the loyalty of satisfied customers, as discussed below.

From this discussion, the indirect positive effect connecting OC to brand equity would outweigh the direct negative or neutral, ones. This effect defines the third hypothesis (see Figure 2):

Hypothesis 3: OC has a positive indirect effect on brand equity through CS because OC affects CS positively and the latter has an overall positive effect on brand equity. Also, OC has a neutral or a negative effect on brand equity, giving rise to a positive overall effect.

[Figure 2 here]

2.3 Customer channel: Connecting customer satisfaction to brand equity

Companies consider improved CS as the principal strategy to gain loyalty and ensure customer retention. The more loyal the firm's customers, the less vulnerable it is from its competitors; this in turn, allows it to implement successful strategies to generate value (Anderson and Sullivan, 1993). CS is a major component of the broader concept of a firm's CSP. This strategy is relevant because, according to the instrumental stakeholder theory (Jones, 1995; Donaldson and Preston, 1995), CSP is a mechanism for generating value. By behaving in a responsible way, firms obtain continued support from those stakeholders that are necessary to ensure access to valuable resources. Such support will improve their brand-equity value. Hence, a positive direct effect emerges connecting CS and a firm's BE value.

However, Hypothesis 2 states that CS has a negative impact on OC and the latter, according to Hypothesis 3, has an overall positive impact on brand equity. This result suggests the existence of an indirect negative channel connecting CS to brand equity through reductions in a firm's OC.

Finally, the comparison of the arguments that support the positive direct effect with the arguments explaining the negative indirect one, suggest that the direct effect will be more relevant for normal values of CS, while the indirect effect will appear mainly in more extreme values. Note that

only the existence of very satisfied customers allow the manager feel confident about being able to face the pressure from shareholders when he is extracting private benefits. In such a situation two consequences may follow. First, the manager will reduce his own stake. Second, significant blockholders will also reduce their stakes. In the same vein, only very satisfied costumers will become shareholders, thus reducing ownership concentration. Hence, the prediction is that the direct effect will be superior to the indirect one under normal circumstances but this may not be the case for extreme values of CS. (see Figure 3).

Hypothesis 4: CS has a strong direct effect on brand equity as well as a negative indirect one resulting from reductions in OC, that appear mainly for large values of CS. Moreover, the overall effect is positive under normal conditions.

[Figure 3 here]

3. EMPIRICAL ANALYSIS

3.1. Sample and Data

The sample is the result of crossing three databases. The first database, OSIRIS contains information on standardized balance sheets in order to accommodate the wide variety of financial accounting practices across countries and industries. The second database, SiRi, is a product of Sustainable Investment Research International Company – the world’s largest company specialized in socially responsible investment (visit www.siricompany.com for more information). Finally, a third database –Interbrand (<http://www.interbrand.com/surveys.asp>)- provides information on brand equity of the most valuable companies. The review Business Week publishes this information every year. The final sample is a panel data of 69 companies from 11 countries for the period 2002-2005.

3.2. Analysis

The following specification tests Hypotheses 1, concerning the connection between OC to CS:

$$Customer_Satisf_{it+1} = \alpha_1 + \alpha_2 Ownership_Concen_{it} + \alpha_3 Size_{it} + \alpha_4 (Leverage)_{it} + \alpha_5 (R \& D)_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

Where η_i is the firm-specific component of the error term.

The SiRi score for the performance of firms in relation to their customers is the measure for Customer_Satisfaction (visit www.centreinfo.ch/doc/doc_site/SP-Novartis-06.pdf for an example of a detailed profile to compute the scores of the different stakeholders like customers, workers, suppliers, community, environment). The largest shareholders' stake variable approaches ownership concentration (the results are the same using the stakes of the three and the five largest shareholders). As controls, specification (1) includes firm *size* (the number of employees on a log scale) because size affects a firm's visibility and performance along with customer satisfaction (Ullman, 1985). The second control is financial structure; *leverage*, defined as debt-to-equity ratio, since the literature (Roberts, 1992; Waddock and Graves, 1997) shows that this variable is a traditional determinant of performance, as well as a measure of a firm's risk (Leland, 1998) which will have an impact on the degree of satisfaction for different stakeholders. Concerning to R&D, defined as the ratio of R&D investments to the number of employees, this variable is an instrument of marketing expenses. As Hirons and Simons (1998) points out "Customer dissatisfaction with poor commercialisation of products indicates that an R&D manager must be proactive in coordinating marketing and manufacturing in technology transfer". Lastly, the specification includes temporal, sectoral and country dummies.

A similar specification to (1) explains the variable of OC and contrast Hypothesis 2. In particular, the specification is as follows:

$$Ownership_Concen_{it+1} = \alpha_1 + \alpha_2 Customer_Satisf_{it} + \alpha_3 Size_{it} + \alpha_4 (Leverage)_{it} + \alpha_5 (ROA)_{it} + \eta_i + \varepsilon_{it} \quad (2)$$

In order to distinguish this specification from (1), a variable of performance, the return on assets, replaces R&D. This variable is a classical determinant of a firm's ownership structure (Demsetz and Villalonga, 2001). ROA is the ratio of earnings before interest and taxes to the total assets.

Note that specifications (1) and (2) show a double-sided relationship and suggest a different effect of OC on CS compared with the effect of CS on OC. This asymmetry precludes the use of SEM techniques given that a double relationship (a loop) only applies for explained (endogenous) variables, but not for explanatory variables like CS and OC in the specification of BE (see Figure 1)

Concerning the test for Hypotheses 3 and 4, the specification used includes as dependent variable a firm's brand equity and as explanatory variables CS and OC as well as different controls. In particular, the variables of *Size*, *Leverage* as well as the R&D intensity given that authors like Simon and Sullivan (1993) consider that R&D intensity and patents could be an important determinant of brand equity when technological innovation is of utmost importance to consumers.

$$\boxed{Brand_Equity_{it+1} = \beta_1 + \beta_2 (Ownership_Concentration)_{it} + \beta_3 (Customer_Satisfaction)_{it} + \beta_4 (Size)_{it} + \beta_5 (Leverage)_{it} + \beta_6 (R \& D)_{it} + \eta'_i + \varepsilon'_{it}} \quad (3)$$

In all specifications, the estimation is in difference when the Hausman test reveals the existence of a correlation between unobservable heterogeneity η_i and the explanatory variables. Also, the dependent variables are lead by one period in all specifications in order to prevent endogeneity problems. Additionally, given specifications (1) and (2), endogeneity problems emerge that require using instruments of the main explanatory variable - ownership_concentration in specification (1) and customer_satisfaction in specification (2). The instruments adopted are the corresponding predicted values from specification (2) for ownership_concentration –see last column of Table 3–, and specification (1) for customer_satisfaction –see last column of Table 2.

Departing from specification (3), the use of only one of the variables, OC or CS, but not both, allows studying the overall effect of each variable on brand equity. However, the use of both variables

together, as shown in specification (3), allows studying the direct effect of each variable on brand equity. That is, we are detracting from each independent variable, the effect due to the other independent variable.

4. RESULTS.

The descriptive evidence in Table 1 shows that the firms in our sample have a low concentrated ownership structure (mean value for the stake of the largest shareholder is 13.7%), customer satisfaction is, on average, greater than 50 on a scale ranging from 0 to 100, and these firms have large brand equity values.

[Table 1 here]

An analysis of the results (standardized coefficients) of the interaction between both channels (OC and CS) shows that OC has a positive impact on CS in the next period (coefficient 1.29, 1 % significant in the third column of Table 2) supporting Hypothesis 1; conversely, the impact of CS on the OC is negative (coefficient -0.12 , 1 % significant in the third column of Table 3) thus supporting Hypothesis 2. These relationships will help to determine the kind of indirect connection between these two variables and brand equity.

[Tables 2 and 3 here]

The test for the connection between CS, OC and brand equity shows that OC has an overall positive impact on brand equity (coefficient 0.03, significant at 5 % level in column 3 of Table 4). This result also holds for CS (coefficient 0.01, significant at 1 % level in column 1 of Table 4). Both results support Hypotheses 3 and 4 partially. In order to separate the aforementioned direct and indirect effects, the specification of column 4 includes both variables OC and CS. The results show that OC has a direct negative effect on brand equity (coefficient -0.01 , 5 % significant), while CS has a direct effect (coefficient 0.02, 1 % significant). Moreover, given the previous results connecting OC and CS (Hypotheses 1 and 2), two consequences follow: first, that OC has a positive impact on CS and that

the latter also has an overall positive impact on brand equity. This impact generates a positive indirect effect of OC on brand equity through CS that outweighs the direct negative one (coefficient -0.01, 5 % significant) because the overall effect is positive (coefficient 0.03, 5 % significant). This finding supports Hypothesis 3. Second, CS has an indirect negative effect on brand equity as this variable affects OC negatively and the latter has an overall positive effect on brand equity. Moreover, this negative indirect effect is lower than the positive direct one (coefficient 0.02, 1 % significant) given that the overall effect is positive (the aforementioned coefficient 0.01, significant at 1 % level), which conforms to Hypothesis 4. In terms of the control variables, the results show that larger firms (more visible) and firms that invest more on R&D, have larger brand equity values.

Finally, in order to contrast the last aspect of Hypothesis 4, column 3 of Table 4 shows a specification that includes quadratic terms of CS. The theoretical contention is that substantial improvements in CS may give rise to an overall negative impact on BE through reductions in OC (indirect channel). The results of the third column of Table 4 show that there is a concave relationship between BE and OC, where the coefficient for the linear term is 0.05 (significant at 1% level) and that of the quadratic term is -0.036 (significant at 5%). Interestingly, this concave function reaches a maximum at the value $0.05/2(0.036)=69.44\%$. Beyond that value, the negative effect outweighs the positive one. Given that CS has a mean value of 57.7% (see Table 1) and that the upper quartile is beyond 69.9%, when CS has a value large enough (in the upper quartile), then, the overall effect of CS on brand equity is negative. This result suggests that the negative indirect effect between CS and brand equity through OC, as described, is relevant for large values of CS where it outweighs the positive direct one. This result is in accordance with Hypothesis 4.

[Table 4 here]

5. DISCUSSION AND CONCLUSION

This paper studies the relationship between the two dimensions underlying brand equity (BE). On the one hand, the value of a brand depends on the degree of customer satisfaction (CS); whereas, on the other hand, BE depends on shareholder commitment. Ownership concentration (OC) captures the latter dimension. The theoretical underpinnings of the paper suggest a close relationship between both dimensions and that a manager who wants to improve a firm's BE should take both of these factors into consideration and not focus solely on customer-targeted marketing policies. This result is an important finding; although CS has a direct positive effect on a firm's BE, CS has also an indirect negative one through reductions in OC. This scenario could be relevant when blockholders infer that a policy aimed at increasing CS substantially is, in fact, a managerial entrenchment strategy. Moreover, this latter indirect effect is relevant for large values of CS and may even outweigh the positive one.

This paper contains some limitations that will be the subject of future research. First, the limited number of observations prevents exploring, at a higher level, the international content of the data in order to compare different institutional frameworks (Anglo-Saxon *versus* non-Anglo-Saxon countries). Second, the sample suffers problems of sample selection bias because the information on brand equity is only available for the corporations with higher brand values. However, this factor goes in favour of the results found because the entrenchment motive behind certain practices to satisfy customers are more evident in firms with lower brand values. In such corporations, managerial control is lower and, consequently, managerial entrenchment is more likely. Hence, the negative effect of CS on BE should appear even at low values of CS, and not in the upper quartile found. Last, the incorporation of other stakeholders, apart from customers, would enrich substantially the analysis and would allow investigating those whom a manager should satisfy in order to improve a firm's BE.

Finally, from our results some recommendations emerge concerning the prevention of a particular strategy – bundling; here, a firm encourages customers to remain loyal by giving them shares. Also, some workers' payment schemes that rely on the transfer of shares together with

discounted prices for a firm's products may affect brand equity detrimentally, due to the negative impact from reductions in OC.

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FIGURES

Figure 1

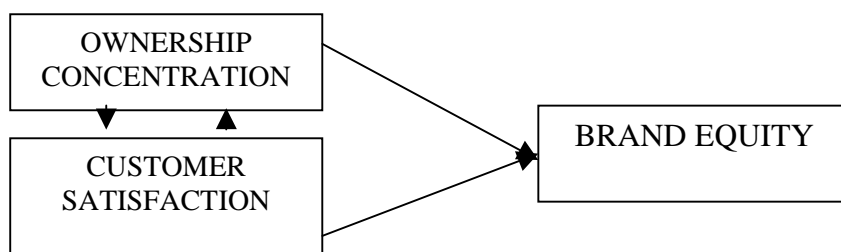


Figure 2

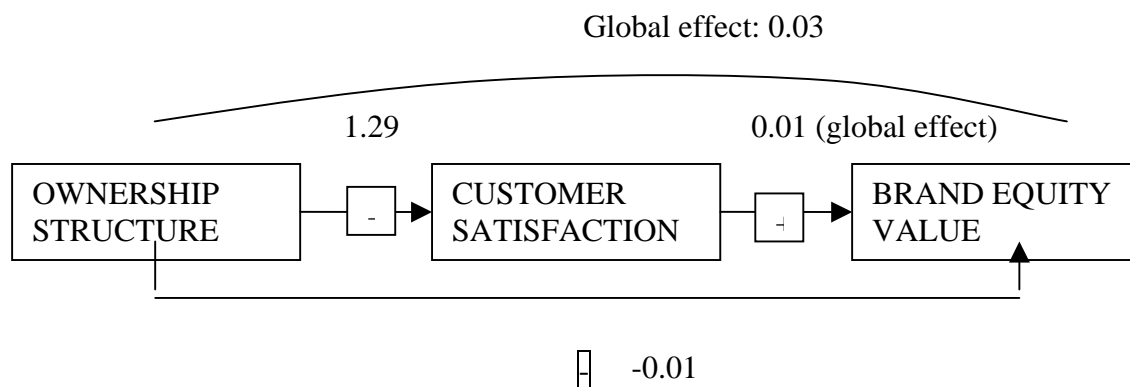


Figure 3

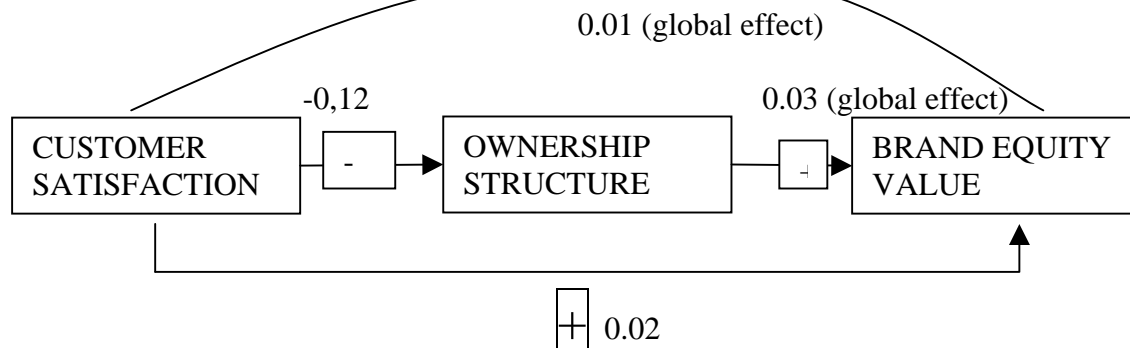


TABLE 1: Descriptive Statistics

Table 1 reports the mean, standard deviation, the maximum and the minimum values of the main variables.

Variable	Observ.	Mean	Std.	Minimum	Maximum
Brand_Equity	64	8546.1	7143.2	1238.3	33499
Customer_Satisfaction	78	57.7	18.5	0.000	100
Ownership_Concentration	78	13.8	5.3	1.4	32.5
Leverage	78	2.3	1.9	0.2	8.6
Size	78	11.2	1.2	8.0	13
ROA	78	5.8	11.6	-84.2	21
R&D	78	15.6	21.6	0	90.6

TABLE 2: Determinants of Customer Satisfaction

Table 2 reports the results of estimating customer satisfaction in terms of ownership concentration and some control variables whose definition is in the text. The estimation of models in columns 2 and 3 is a two-stage least square where the instrument for the variable of Ownership_Concentration is the predicted value of this variable that results from the estimation of the specification (2) in the text. The dependent variable is lead by one period to reduce endogeneity problems.

Dependent Variable	Customer_Satisfaction	Customer_Satisfaction (Instrumented)	Customer_Satisfaction (Instrumented)
Ownership_Concentration		1.74*** (2.86)	1.29*** (3.18)
Leverage	-0.32 (-0.85)	-0.95 (-1.18)	-0.02 (-0.05)
Size	0.29*** (2.30)	0.24 (1.34)	0.24 (1.33)
R&D			0.34** (2.10)
Number of observations	78	78	78
R2	15.93%	42.33%	43.42%
Fitness test	34.42 (0.00)	1.98 (0.02)	1.94 (0.02)
Hausman Test	4.44 (0.62)		

***p-value 0.01, ** p-value 0.05, *p-value 0.10. In parentheses the t-statistic.

TABLE 3: Determinants of Ownership Concentration

Table 3 reports the results of estimating ownership concentration in terms of customer satisfaction and some control variables whose definition is in the text. The estimation of models in columns 1 and 2 use random-effects given that the Hausman test rules out the existence of unobservable heterogeneity correlated with the independent variables. The estimation of the model in column 3 is a two-stage least square where the instrument for the variable of Customer_Satisfaction is the predicted value of this variable that results from the estimation of the specification (1) in the text. The dependent variable is lead by one period to reduce endogeneity problems.

Dependent Variable	Ownership_Concentration (Lead by one period)	Ownership_Concentration (Lead by one period)	Ownership_Concentration (Lead by one period) (Instrumented)
Customer_Satisfaction		-0.01* (-1.66)	-0.12*** (-5.97)
Leverage	0.02 (0.24)	0.06 (1.05)	0.18*** (2.30)
Size	-0.02 (-0.15)	0.32 (0.88)	0.45*** (3.64)
ROA	0.09 (0.84)	-0.03 (-0.49)	0.07 (0.86)
Number of observat.	111	111	111
R2	30.23%	51.12%	64.68%
Fitness test	32.30 (0.05)	28.72 (0.02)	7.55 (0.00)
Hausman Test	1.35 (0.99)	11.22 (0.19)	

***p-value 0.01, ** p-value 0.05, *p-value 0.10. In parentheses the t-statistic.

TABLE 4: Determinants of Brand Equity

Table 4 reports the results of estimating brand equity in terms of ownership concentration and customer satisfaction as well as some control variables whose definition is in the text. The estimation of models in columns 1, 2 and 3 use random-effects given that the Hausman test rules out the existence of unobservable heterogeneity correlated with the independent variables. However, this is not true for the model of column 4 whose estimation relies on fixed-effect techniques. The dependent variable is lead by one period to reduce endogeneity problems.

Dependent Variable	Brand_Equity (one period lead)	Brand_Equity (one period lead)	Brand_Equity (one period lead)	Brand_Equity (one period lead)
Customer_Satisfaction	0.01*** (2.35)	0.05*** (3.39)		0.02*** (3.83)
Customer_Satisfaction [^] 2		-0.04** (-2.26)		
Ownership_Concentration			0.03** (1.79)	-0.01** (-2.29)
Leverage	-0.26*** (-0.97)	-0.30** (-2.18)	0.02** (2.74)	-0.25 (-0.16)
Size	0.08 (4.07)	0.06 (4.04)	0.15** (2.00)	0.09*** (7.91)
R&D	0.18*** (5.86)	0.16*** (9.29)	0.19 *** (3.14)	0.17*** (9.40)
Number of observations	43	43	94	43
R2	27.02%	20.94%	21.31%	27.25%
Fitness test (LR test)	495.17 (0.000)	2021.43 (0.000)	35.49 (0.000)	244.96 (0.000)
Hausman Test	0.78 (0.999)	5.580 (0.694)	1.77 (0.939)	16.09 (0.04)

***p-value 0.01, ** p-value 0.05, *p-value 0.10. In parentheses the t-statistic.